

WHAT IS CLAIMED IS:

1. A system for wireless communication having an asynchronous access region and a channel-time-allocation access region,

wherein information communication is initiated in the asynchronous access region and, in excess of a predetermined transmission capacity, channel time is allocated.

2. A system for wireless communication having an asynchronous access region and a channel-time-allocation access region,

wherein, below a predetermined transmission capacity during channel time allocation communication, channel time is released.

3. A wireless communication device for performing frame-based channel time allocation within a wireless network in which wireless communication having an asynchronous access region and a channel-time-allocation access region is performed at a predetermined frame period between wireless communication devices, said wireless communication device comprising:

request receiving means for receiving at least one of a channel time allocation request and a channel time release

request from another wireless communication device in the wireless network; and

frame setting means for setting the asynchronous access region and the channel-time-allocation access region in the frame period according to the received at least one of the channel time allocation request and the channel time release request.

4. A wireless communication method of performing frame-based channel time allocation within a wireless network in which wireless communication having an asynchronous access region and a channel-time-allocation access region is performed at a predetermined frame period between wireless communication devices, said wireless communication method comprising:

a request receiving step of receiving at least one of a channel time allocation request and a channel time release request from a wireless communication device in the wireless network; and

a frame setting step of setting the asynchronous access region and the channel-time-allocation access region in the frame period according to the received at least one of the channel time allocation request and the channel time release request.

5. A wireless communication device operating in a wireless network in which wireless communication having an asynchronous access region and a channel-time-allocation access region is performed at a predetermined frame period under the management of a control station, said wireless communication device comprising:

asynchronous access control means for transmitting information in the asynchronous access region;

channel time allocation communication control means for transmitting information using channel time allocated in the channel-time-allocation access region;

transmission information storing means for storing transmission information;

transmission capacity determining means for determining the amount of information transmittable in the asynchronous access region; and

channel time request means for sending a channel time allocation request or a channel time release request to the control station according to a result of comparison between the amount of information stored in the transmission information storing means and the amount of information determined by the transmission capacity determining means.

6. A wireless communication device according to claim 5, wherein the transmission capacity determining means

determines the amount of information transmittable in the asynchronous access region by dividing the overall bandwidth of the asynchronous access region by the number of wireless communication devices forming the wireless network.

7. A wireless communication device according to claim 5, wherein the channel time request means sends the channel time allocation request to the control station when the amount of information stored in the transmission information storing means exceeds the amount of information determined by the transmission capacity determining means during transmission of the information in the asynchronous access region performed by the asynchronous access control means.

8. A wireless communication device according to claim 5, wherein the channel time request means sends the channel time release request to the control station when the amount of information stored in the transmission information storing means is below the amount of information determined by the transmission capacity determining means during transmission of the information in the channel-time-allocation access region performed by the channel time allocation communication control means.

9. A wireless communication method of performing

wireless communication having an asynchronous access region and a channel-time-allocation access region at a predetermined frame period under the management of a control station in a wireless network, said wireless communication method comprising:

- an asynchronous access control step of transmitting information in the asynchronous access region;

- a channel time allocation communication control step of transmitting information using channel time allocated in the channel-time-allocation access region;

- a transmission information storing step of storing transmission information;

- a transmission capacity determining step of determining the amount of information transmittable in the asynchronous access region; and

- a channel time request step of sending a channel time allocation request or a channel time release request to the control station according to a result of comparison between the amount of information stored in the transmission information storing step and the amount of information determined in the transmission capacity determining step.

10. A wireless communication method according to claim 9, wherein the transmission capacity determining step includes dividing the overall bandwidth of the asynchronous

access region by the number of wireless communication devices forming the wireless network to determine the amount of information transmittable in the asynchronous access region.

11. A wireless communication method according to claim 9, wherein the channel time request step includes sending the channel time allocation request to the control station when the amount of information stored in the transmission information storing step exceeds the amount of information determined in the transmission capacity determining step during transmission of the information in the asynchronous access region performed in the asynchronous access control step.

12. A wireless communication method according to claim 9, wherein the channel time request step includes sending the channel time release request to the control station when the amount of information stored in the transmission information storing step is below the amount of information determined in the transmission capacity determining step during transmission of the information in the channel-time-allocation access region performed in the channel time allocation communication control step.

13. A computer program described in a computer-readable format for executing on a computer system a frame-based channel time allocation process within a wireless network in which wireless communication having an asynchronous access region and a channel-time-allocation access region is performed at a predetermined frame period between wireless communication devices, the computer program comprising:

a request receiving step of receiving at least one of a channel time allocation request and a channel time release request from a wireless communication device in the wireless network; and

a frame setting step of setting the asynchronous access region and the channel-time-allocation access region in the frame period according to the received at least one the channel time allocation request and the channel time release request.

14. A computer program described in a computer-readable format for executing on a computer system a process for performing wireless communication having an asynchronous access region and a channel-time-allocation access region at a predetermined frame period under the management of a control station in a wireless network, the computer program comprising:

an asynchronous access control step of transmitting information in the asynchronous access region;

a channel time allocation communication control step of transmitting information using channel time allocated in the channel-time-allocation access region;

a transmission information storing step of storing transmission information;

a transmission capacity determining step of determining the amount of information transmittable in the asynchronous access region; and

a channel time request step of sending a channel time allocation request or a channel time release request to the control station according to a result of comparison between the amount of information stored in the transmission information storing step and the amount of information determined in the transmission capacity determining step.

15. A computer program according to claim 14, wherein the transmission capacity determining step includes dividing the overall bandwidth of the asynchronous access region by the number of wireless communication devices forming the wireless network to determine the amount of information transmittable in the asynchronous access region.

16. A computer program according to claim 14, wherein



the channel time request step includes sending the channel time allocation request to the control station when the amount of information stored in the transmission information storing step exceeds the amount of information determined in the transmission capacity determining step during transmission of the information in the asynchronous access region performed in the asynchronous access control step.

17. A computer program according to claim 14, wherein the channel time request step includes sending the channel time release request to the control station when the amount of information stored in the transmission information storing step is below the amount of information determined in the transmission capacity determining step during transmission of the information in the channel-time-allocation access region performed in the channel time allocation communication control step.